

MACHINE SERVICE BULLETIN NO. 167

SUBJECT: LA-6 Model,

DATE: January 15, 1934

TO ALL OFFICES:-

We release herewith Machine Service Bulletin No. 167, Plates 1 to 7 inclusive, which illustrate and describe the mechanism that has been added to the LA-6 whereby the repeat and non-repeat keys are automatically controlled.

The purpose of this mechanism is to reduce the number of manual operations necessary when performing series of multiplications or series of divisions, in other words, to eliminate the necessity for manually clearing the keyboard when a multiplicand or divisor is to be put into the machine. The action of the mechanism is as follows:-

NOTE: The term multiplicand or divisor is to be considered in these instructions as representing the last amount to be set on the keyboard before starting automatic multiplication or division in any problem. If the term multiplier or dividend is used these terms represent the first amount to be set on the keyboard.

When clearing the keyboard to prepare it for the depression of the keys representing a multiplier to be registered in the lower dials, the action of depressing the master clear-out key depresses the non-repeat key so that when the plus bar is depressed and the amount is registered in the lower dials, the keyboard clears automatically as in addition with the non-repeat key depressed. When the multiplicand has been set up on the keyboard, the action of operating the multiplier lever automatically depresses the repeat key so that the amount set up remains in the keyboard until the completion of the problem. This same sequence of automatic operation of the repeat and non-repeat keys, occurs in the set up of a dividend and divisor and the operation of the division lever.

A knob is provided which extends from the right of the machine through the case to engage or disconnect this mechanism, as required.

The tools and material to install this mechanism may be obtained from Orange at no charge on receipt of requisition form 462-S, to cover, which must also include the serial numbers of the machines for which the mechanism is intended.

Functioning Explanation:-
(Refer to Figures 1 and 2, Plate 1)

When the knob (G) is positioned inward and the master clear key (E) is depressed, the following sequence of operations occur: The rocker arm (F) contacted by the master clear key pivots at (H) and causes the lug (J) to force the repeat key upward. The upward

movement of the repeat key (A) pivots the rocker arm (K) at (L) causing the non-repeat key (B) to be forced downward. The rocker arm (K) in pivoting, forces lever (M) rearward as indicated by arrow (N) thereby causing cam (V) on gear assembly (D) to contact lever (M) resulting in the automatic restoring of the keyboard keys.

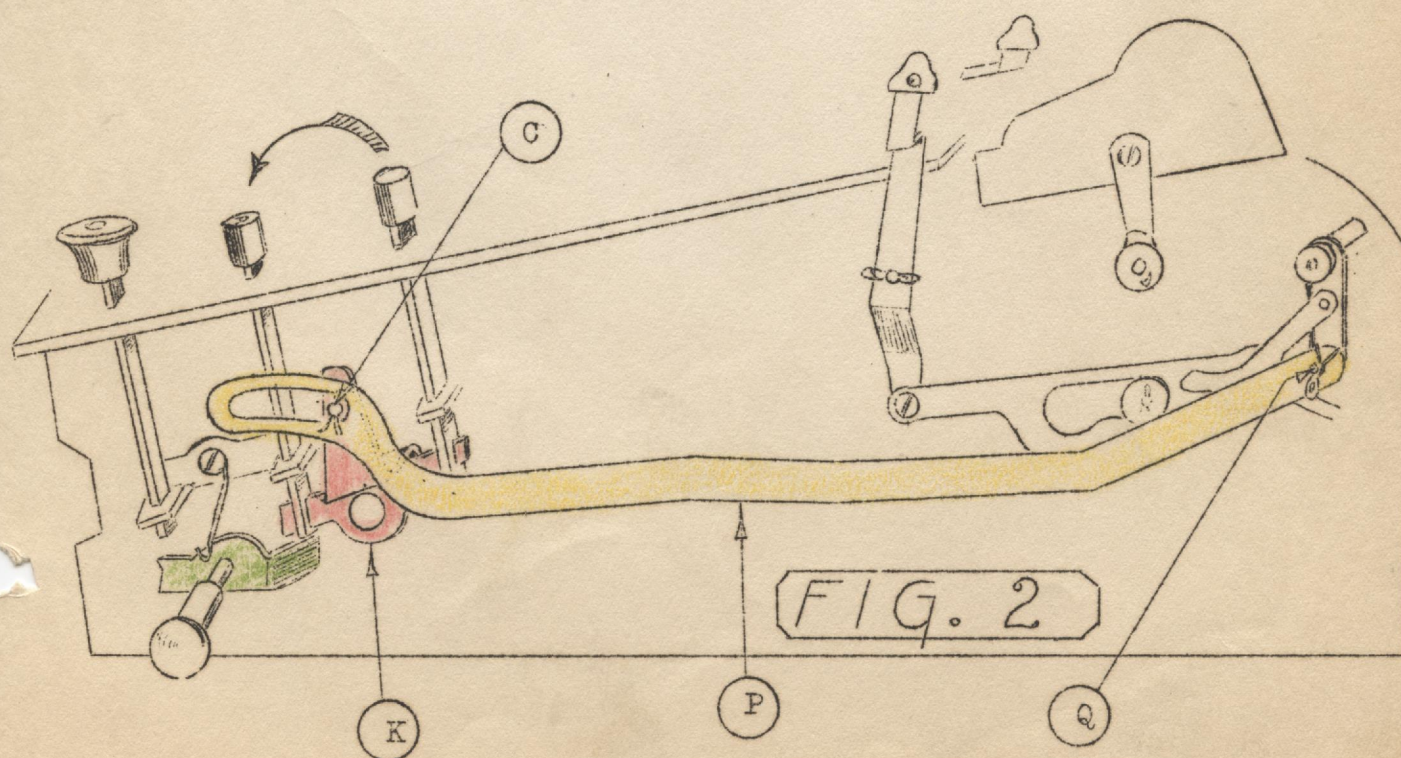
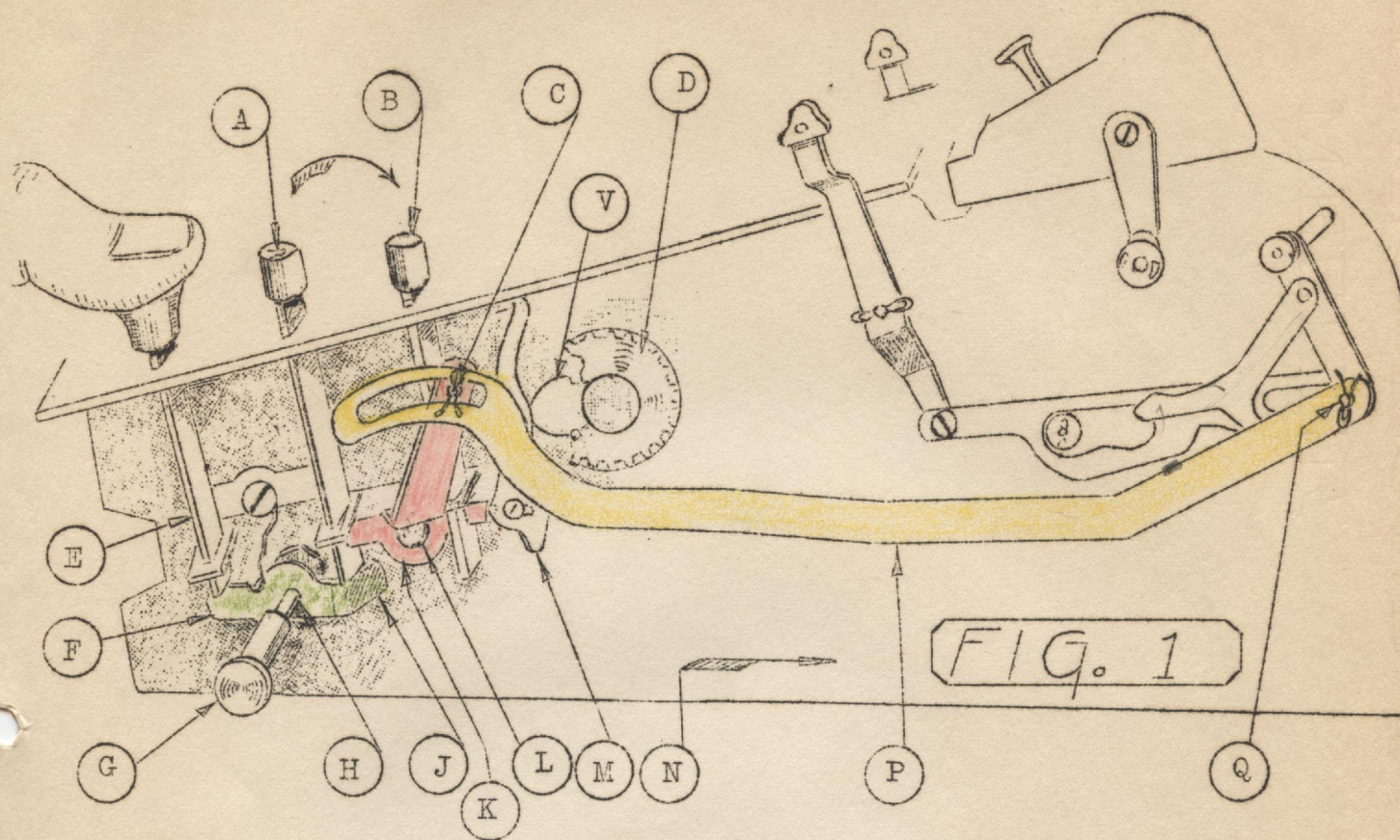
When the knob (G) is withdrawn, the repeat, non-repeat and master clear keys function in the usual manner.

When the multiplication or division lever is placed in operating position link (P) causes a pivoting movement of rocker arm (K) thereby resulting in the depression of the repeat key.

F. M. Smith

FMS:TG

General Service Manager



HOW TO INSTALL:-

- (1) Remove the carriage, case, and bottom pan.
- (2) Remove the three buttons shown as (C).
- (3) Remove the nut on inside of the side frame which holds screw (J).
- (4) Remove screw (J) together with the spacer (H).
- (5) Remove lever (K).
- (6) Remove screws (E).
- (7) Remove screw (B).
- (8) Raise the keyboard slightly at (A).
- (9) Lift rocker arm (F) off stud (G).
- (10) Withdraw the repeat and non-repeat keys together with the lower bracket and rocker arm (F).

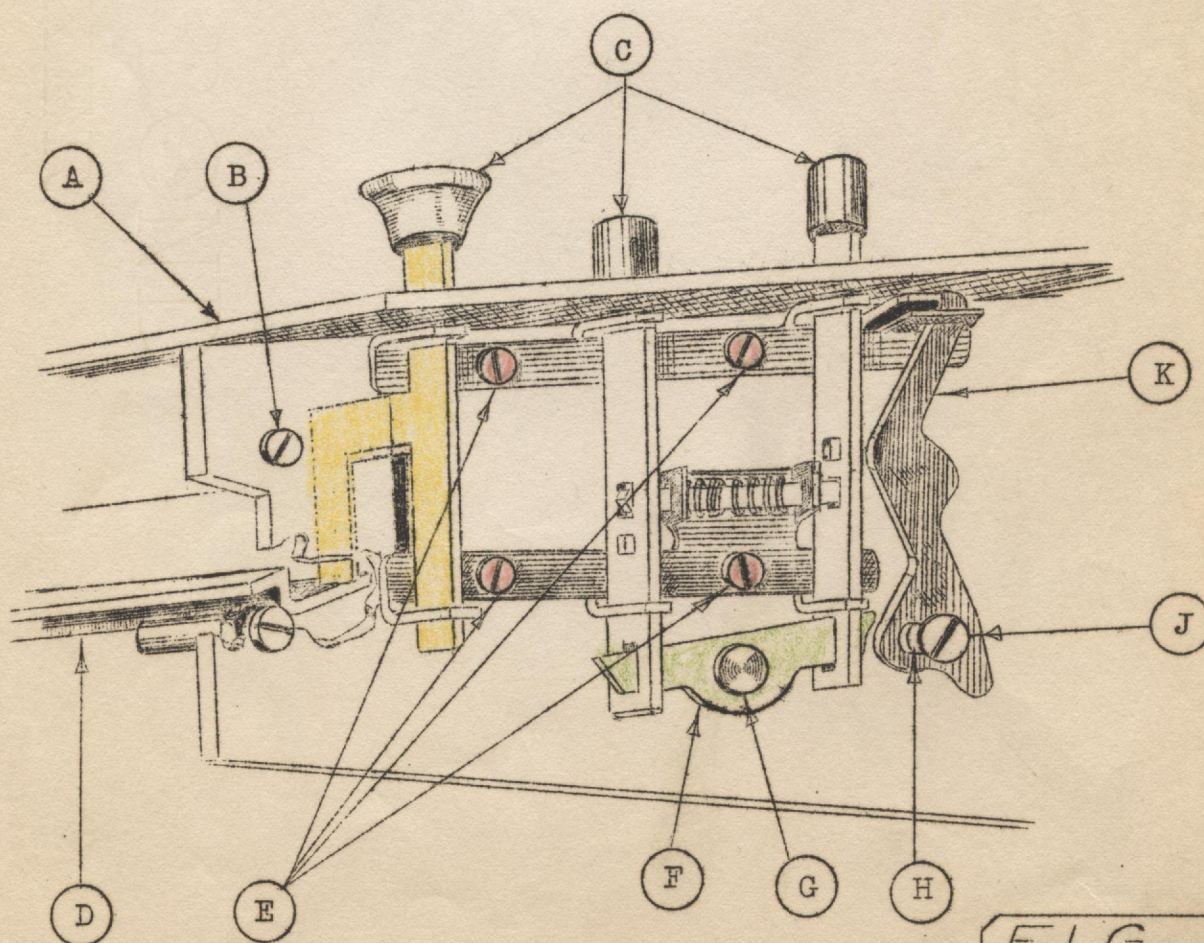
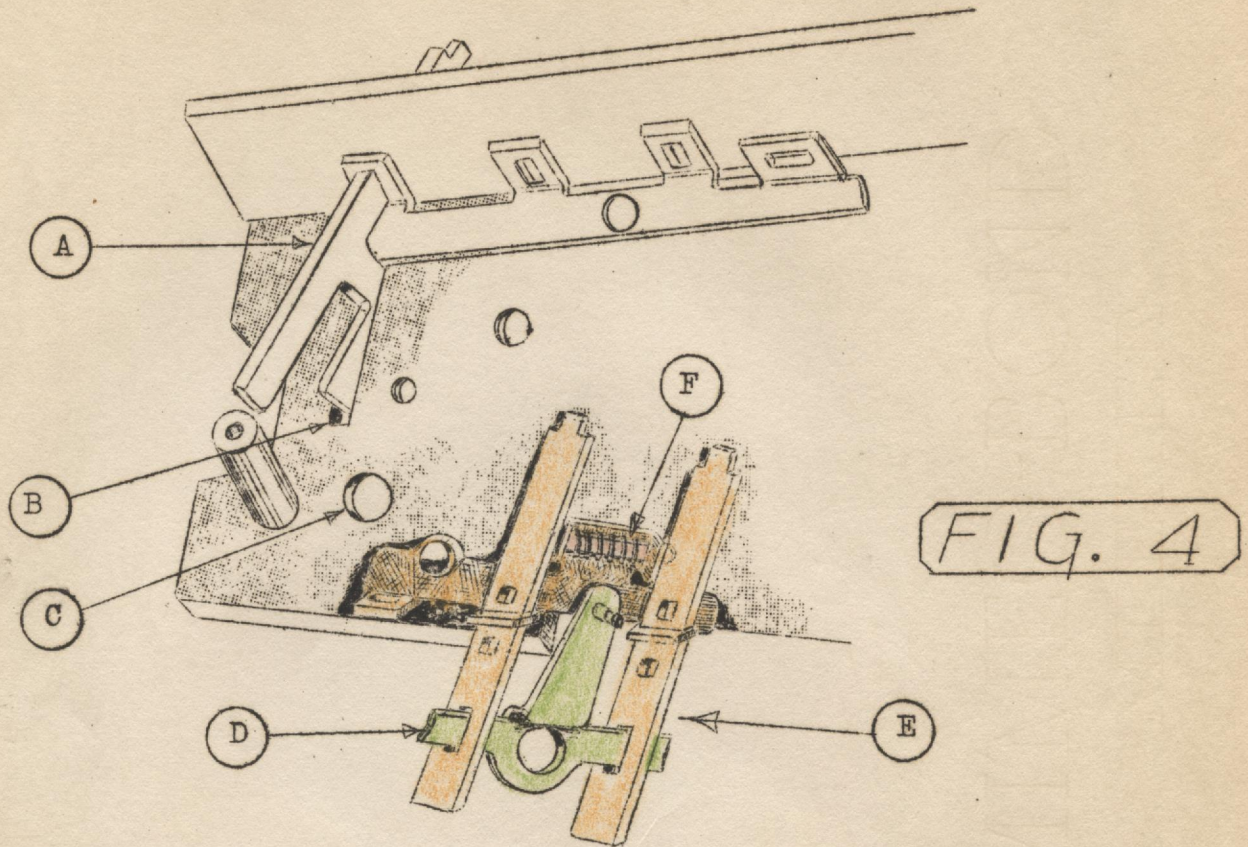


FIG. 3

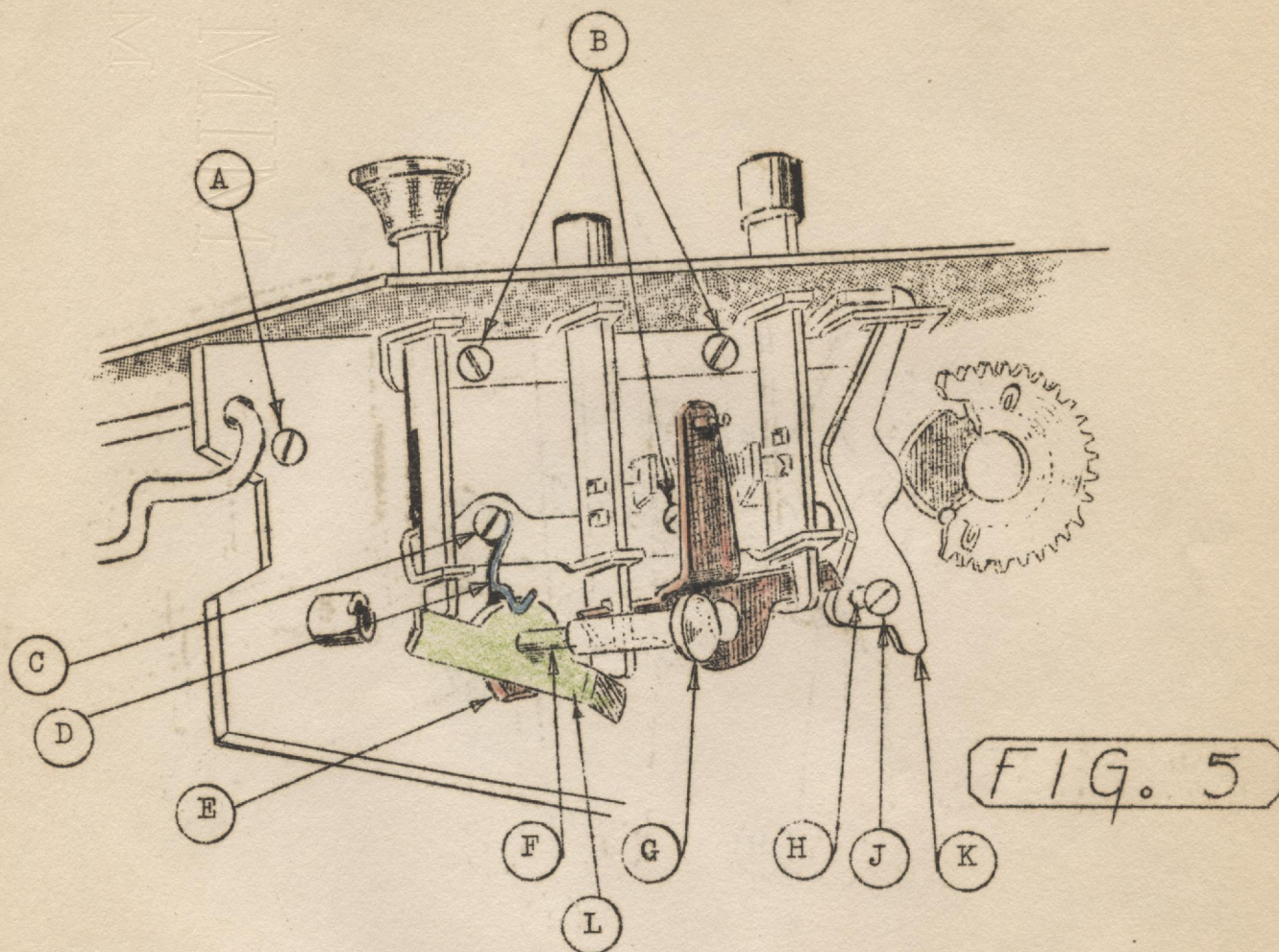
- (11) Remove the master clear key (A) from slot (B) by lifting outward from the bottom of the key.
- (12) Remove the rocker arm (D) and replace it with a 41-632, as shown.



- (13) Drill hole shown as (C) by following detailed instructions on Plate 7.
- (14) Install the master clear key and upper bracket by inserting the master clear key (A) in slot (B) holding the pivot bar (D), Figure 3, Plate 2, downward while doing so.
- (15) Install the repeat and non-repeat key assembly (E) on the side frame.
- (16) Install buttons on the repeat, non-repeat and master clear-out keys.

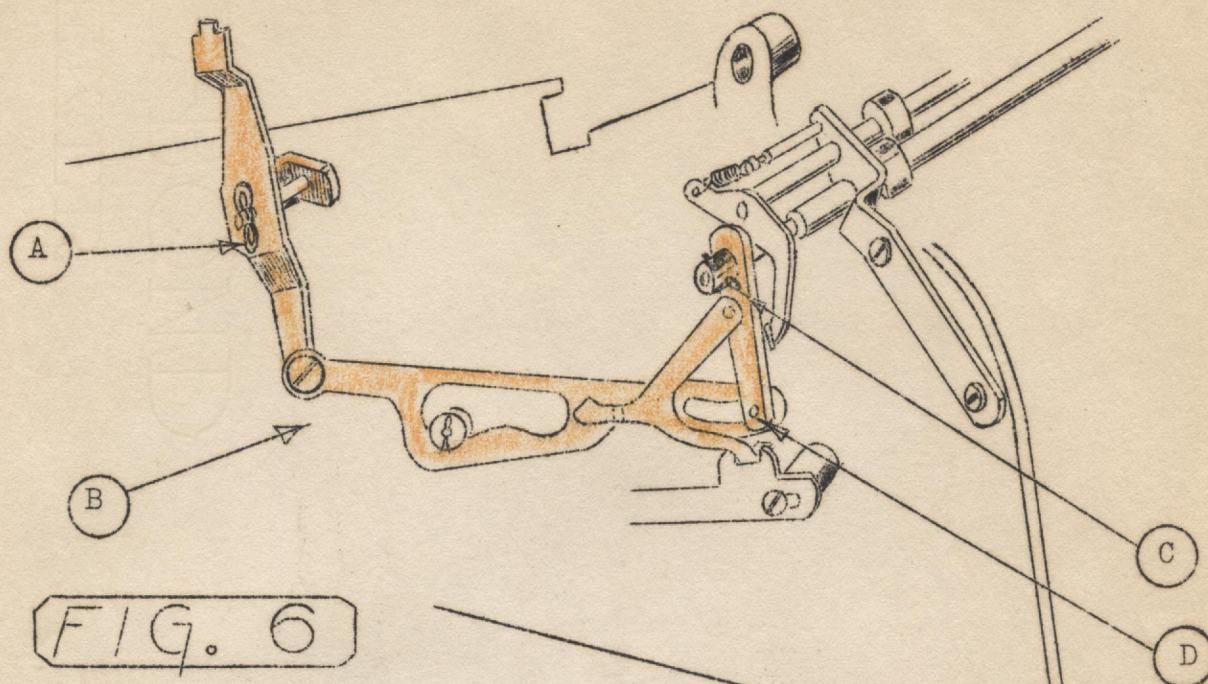
NOTE: It may be necessary to reposition plungers (F), in their respective holes in the repeat and non-repeat keys in order to install unit (E).

- (17) Insert screws (B).
- (18) Install the clear lever (K) and spacer (H). Insert screw (J) and secure with nut previously removed from it.
- (19) Insert screw (A).

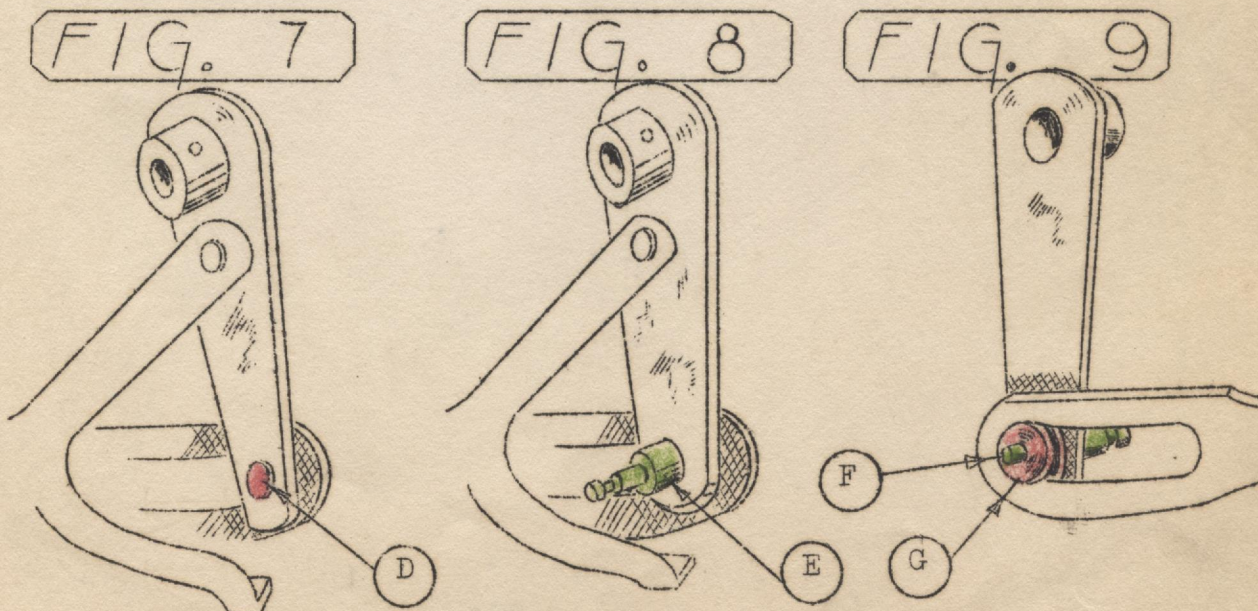


- (20) Insert the 46460 bearing, from the inside, through the newly drilled hole and secure it to the side frame with the 348 nut shown as (E).
- (21) Insert the grooved end of the 41-6301, shown as (F), in the bearing and install a #85 ring on it.
- (22) Screw the 3501 $\frac{1}{2}$ knob, shown as (G), on the 41-6301 shown as (F).
- (23) Place screw (C) through the 46810 spring, shown as (D), and insert in its original position as shown.
- (24) Position the spring (D) in its proper relation to the rocker arm (L) as shown.

- (25) Remove pin (C), retaining ring (A) and multiplication lever assembly (B).
 (26) Remove rivet (D) from assembly (B).

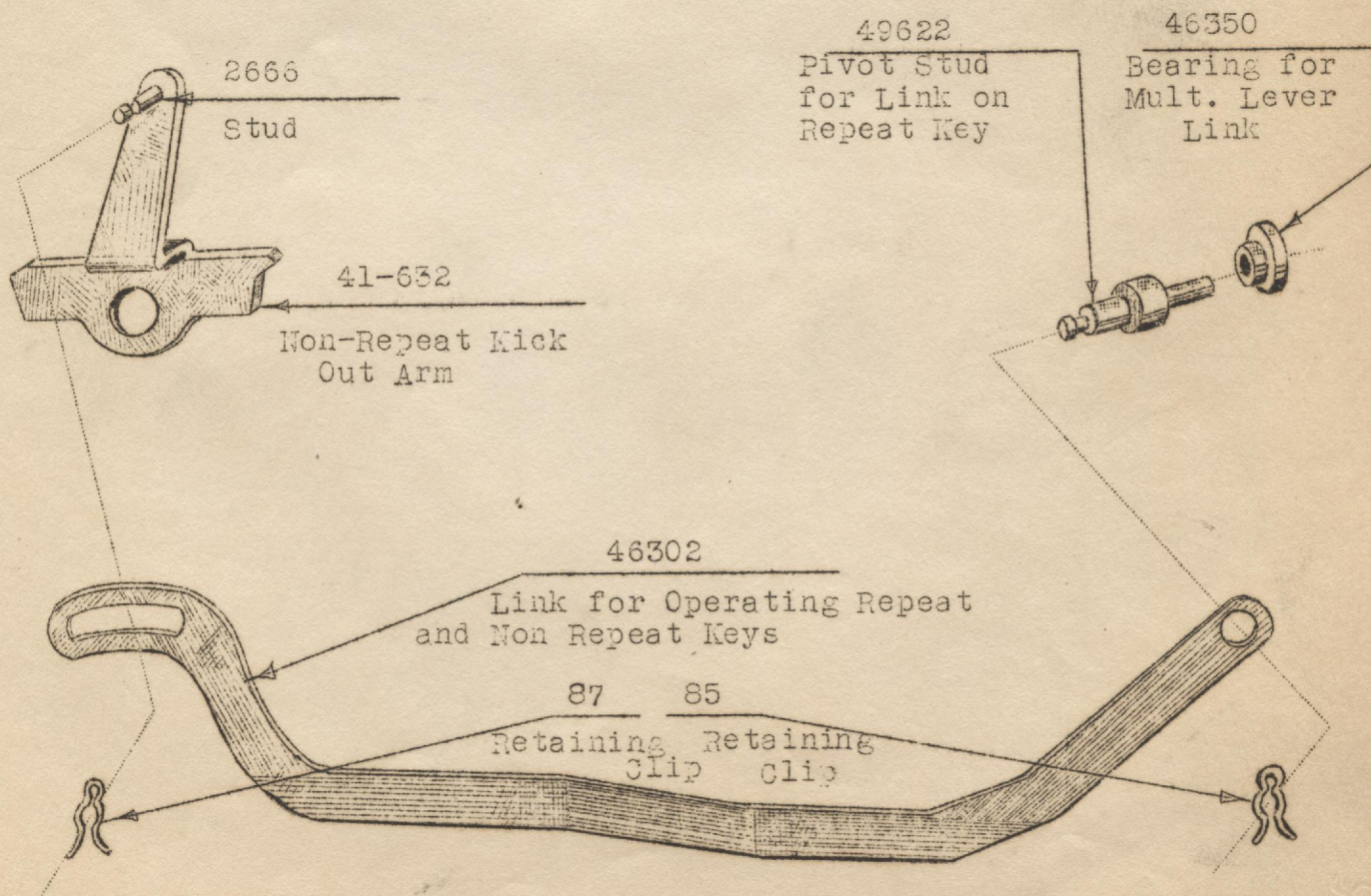
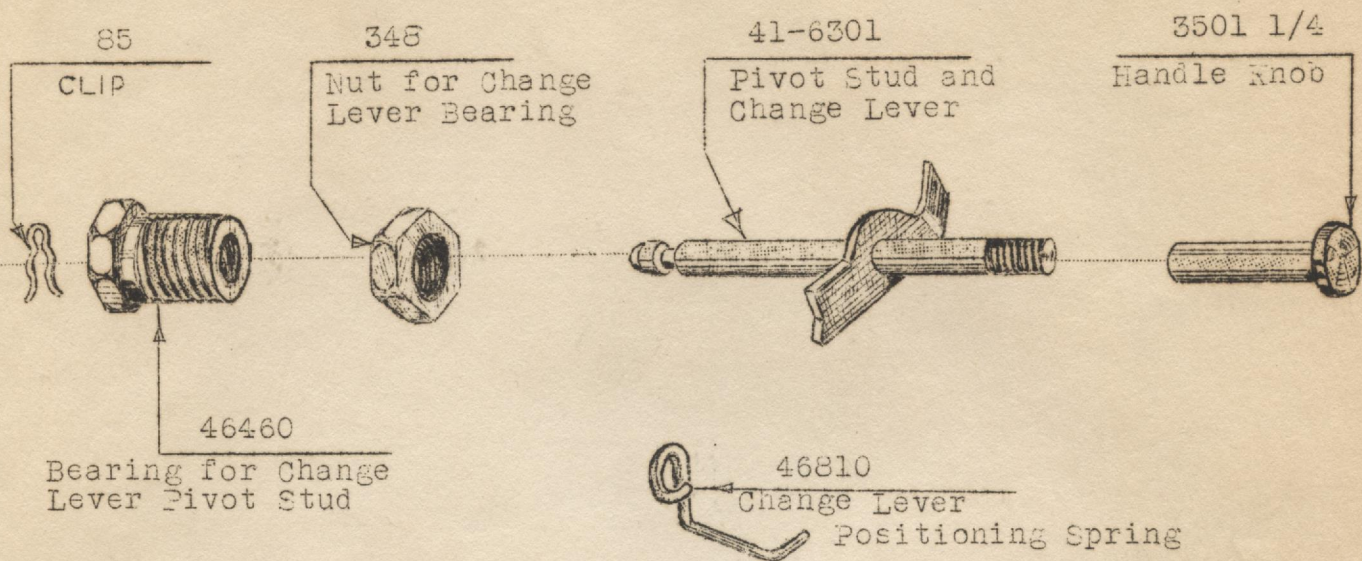


- (27) Drill a clearance hole in the cover case for the $3501\frac{1}{4}$ knob by following the detailed instructions on Plate 7.
 (28) Install a 49622 stud, shown as (E), and 46350 bearing, shown as (G), in place of rivet (D), and rivet securely at (F).
 (29) Install the multiplication lever assembly (B) on the machine and secure with retaining ring (A) and taper pin (C).
 (30) Place the 46302 link on studs (C) and (Q), Plate 1 and secure with retaining rings.
 (31) Remove the $3501\frac{1}{4}$ knob, shown as (G), Plate 4.



- (32) Reassemble the case, bottom pan, carriage and the $3501\frac{1}{4}$ knob to the machine.

Parts and Assemblies Used



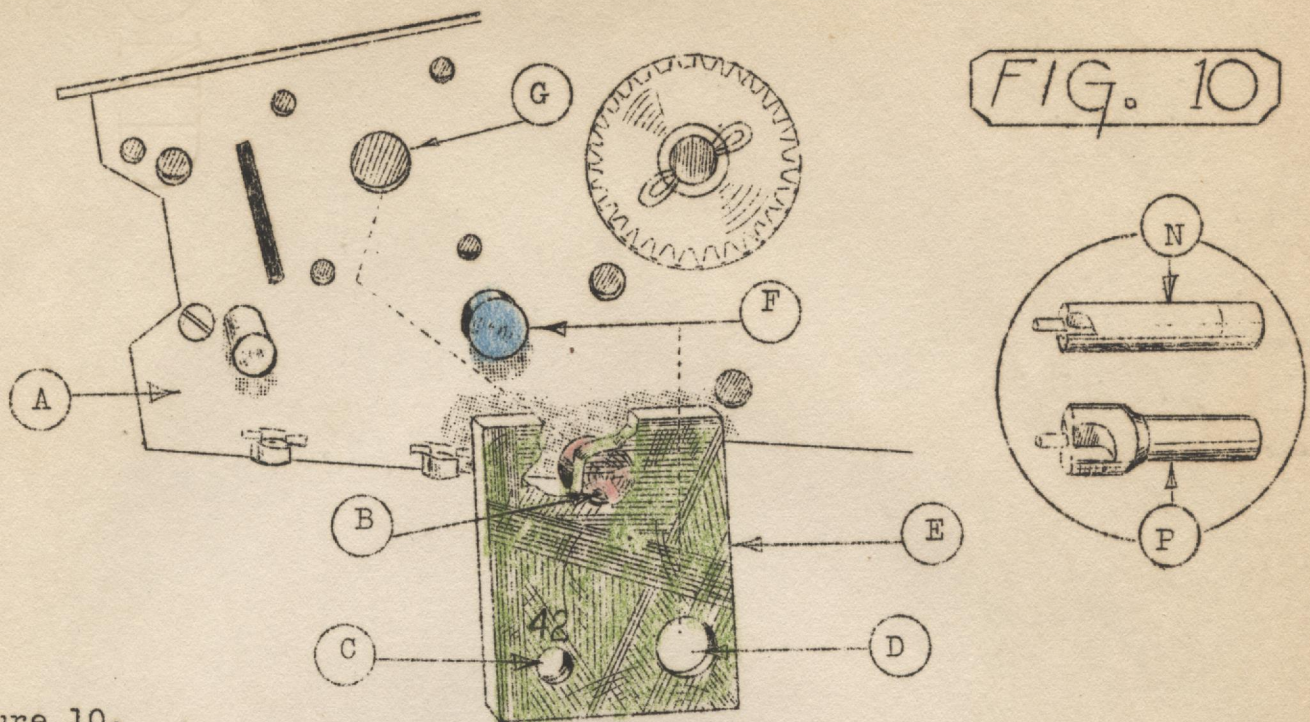


Figure 10.

- (1) Locate jig (E) on the side frame (A) by installing hole (D) over post (F) and inserting stud (B) in hole (C).
- (2) With a #42 drill, drill a hole in the side frame, using hole (C) as a guide.
- (3) Remove jig (E) and enlarge the hole with counterbore (N).

Figure 11.

- (4) Locate jig (K) on the cover case (M) by inserting stud (J) in the screw hole and position stud (L) against the bottom edge of the case as shown.
- (5) With a #42 drill, drill a hole in the cover case, using hole (H) as a guide.
- (6) Remove jig (K) and enlarge the hole with counterbore (P).

